

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

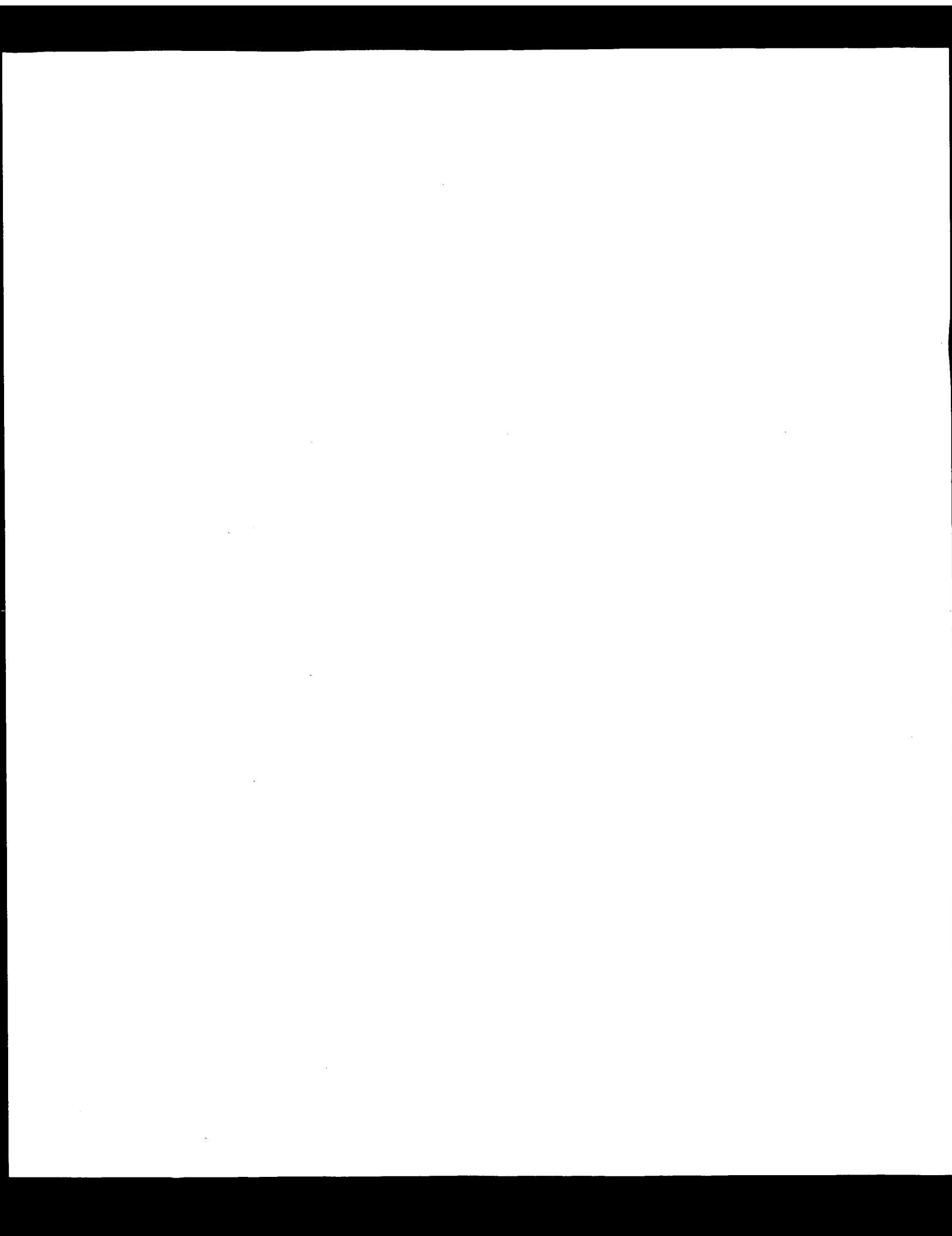
Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



# (12) UK Patent Application (19) GB (11) 2 320 509 A

(43) Date of A Publication 24.06.1998

(21) Application No 9626390.0

(22) Date of Filing 19.12.1996

(71) Applicant(s)

Kingfisher Lighting Limited

(Incorporated in the United Kingdom)

Kingfisher House, Unit 1 Portland Drive, Shirebrook,  
NR. MANSFIELD, Nottinghamshire, NG20 8TY,  
United Kingdom

(72) Inventor(s)

John Harding

(74) Agent and/or Address for Service

Swindell & Pearson

48 Friar Gate, DERBY, DE1 1GY, United Kingdom

(51) INT CL<sup>6</sup>  
E04H 15/58

(52) UK CL (Edition P)  
E1D DTNR D135 D155 D156 D157

(56) Documents Cited

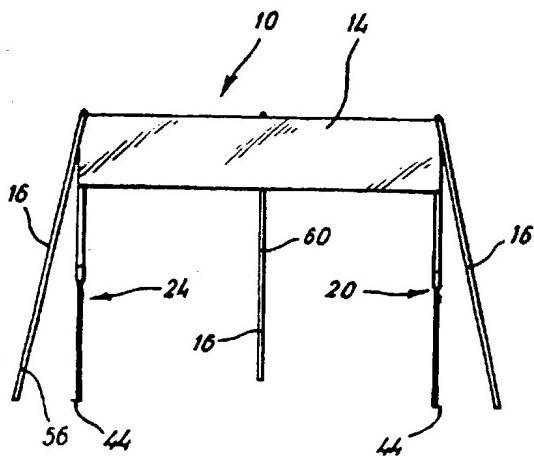
GB 2183267 A EP 0514574 A1 WO 96/03561 A1  
WO 96/03560 A1 US 5634483 A US 5275188 A  
US 4947884 A

(58) Field of Search

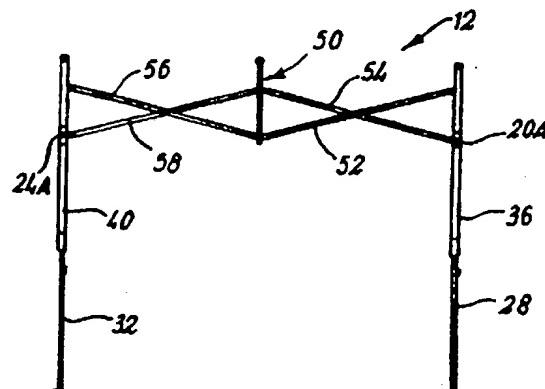
UK CL (Edition P) E1D DTNJ DTNK DTNL DTNM  
DTNN DTNR  
INT CL<sup>6</sup> E04H  
On-line database - Derwent W.P.I.

## (54) Collapsible portable shelter

(57) A collapsible portable shelter 10 has four ground engageable telescopic legs 20-26 defining respective corners of the shelter 10 with a frame arrangement at each end of the shelter 10 interconnecting upper parts of the respective support legs, and a frame arrangement at each of the front and back of the shelter 10 interconnecting the upper parts of the respective support legs. Each frame arrangement has pivotally interconnected frame members 52-58 which are manually movable between a collapsed condition and an erected condition. A cover is permanently attached to the shelter 10 and forms a canopy 14 in an erected condition of the shelter, extending over the frame arrangements. For storage and transport, the shelter 10 can collapse to a condition in which it occupies substantially the same space as a golf bag. The shelter can be stabilised by guy ropes 16 and additional panel covers can be provided to extend across the back and ends of the erected shelter.



**FIG. 1**



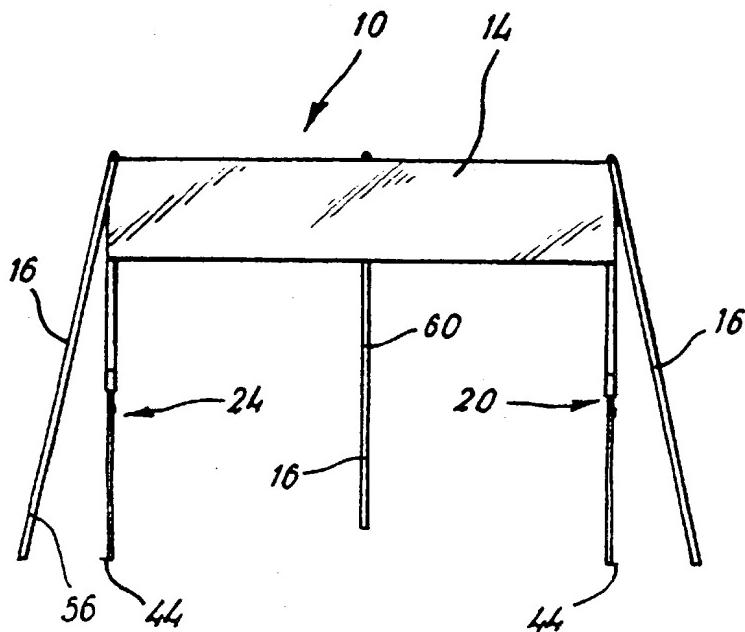
**FIG. 3**

GB 2 320 509 A

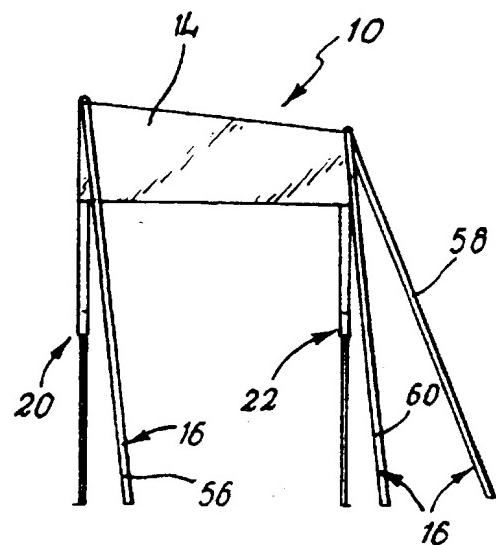
At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

1/2



### Fig. 1



*Fig. 2*

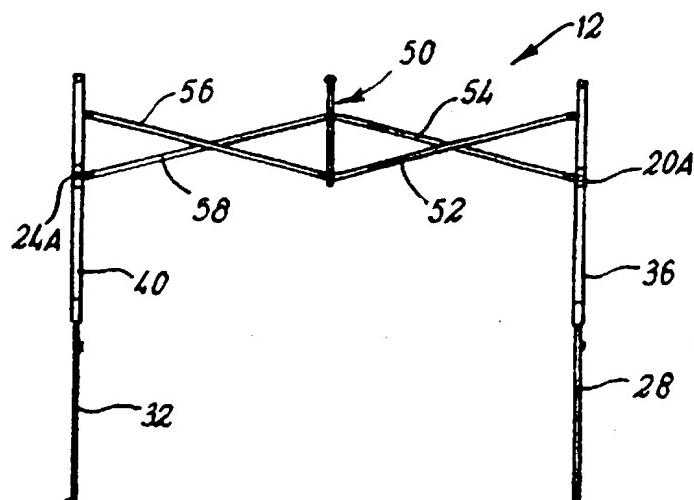


Fig. 3

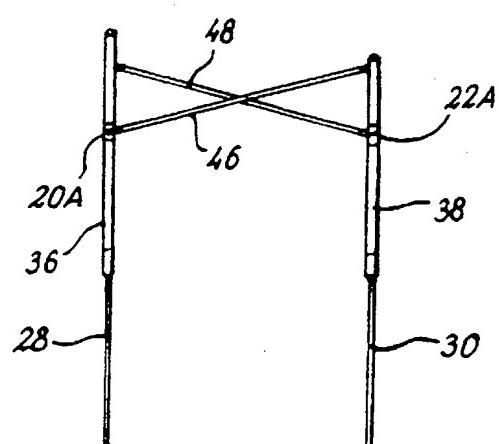


FIG. 4

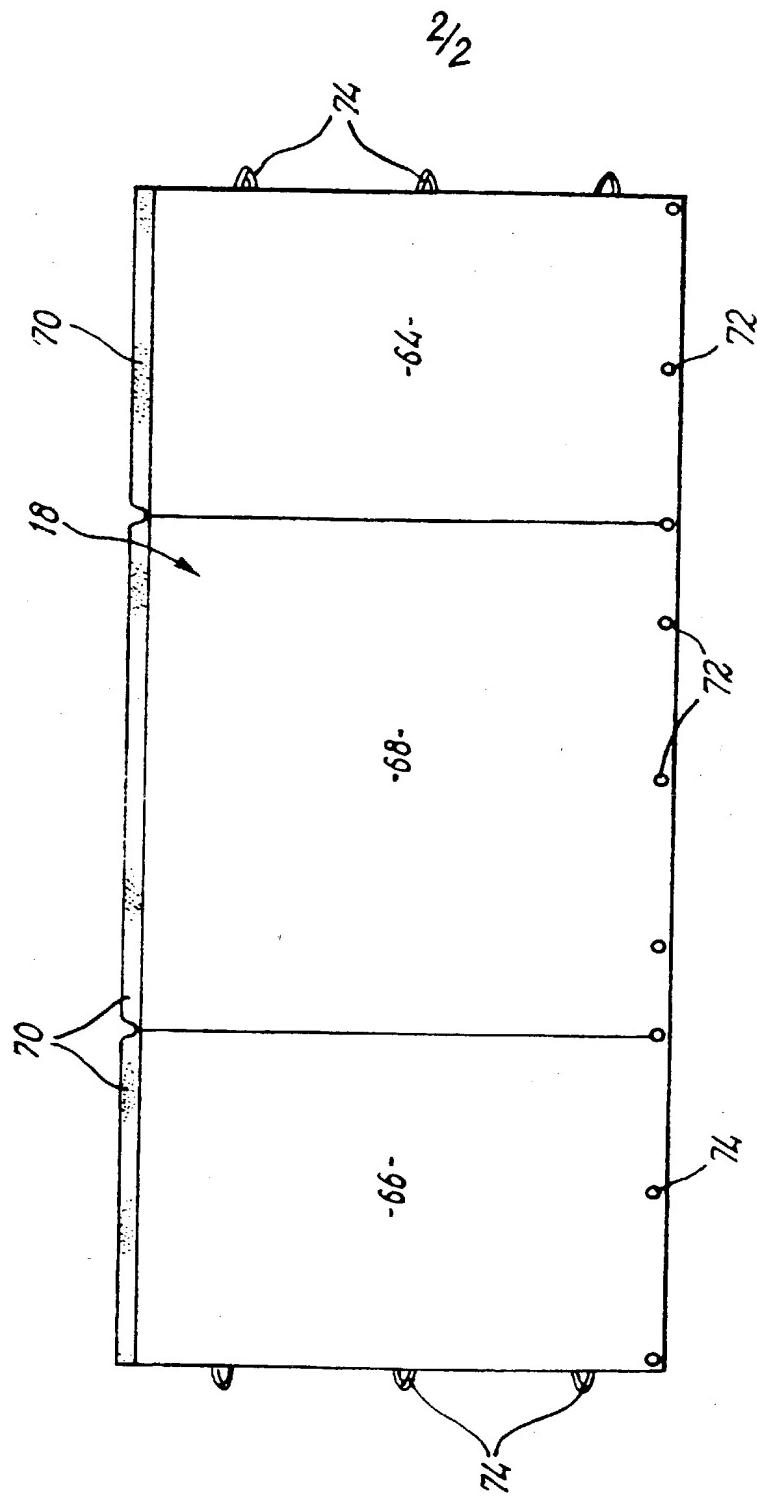


FIG. 5

Portable Shelter

This invention relates to a collapsible portable shelter, particularly, but not exclusively, a sports event team shelter.

When a team is attending a sporting fixture it is desirable that the reserve team members and the coaching staff have some form of shelter from which to watch the fixture, particularly in poor weather conditions. The cost of suitable permanent shelters is prohibitively high for many non-professional teams, and while the team may have such a shelter at its home venue, away fixture venues may not offer the facility.

According to the present invention there is provided a portable shelter having a frame arrangement comprising a plurality of ground engageable support members and a plurality of frame members interconnecting the support members, respective ones of the frame members being pivotally interconnected with one another and with the respective support members, whereby to be manually movable between a collapsed condition and an erected condition, a cover arrangement formed of a flexible material being attached to the frame arrangement and adapted to form a canopy in the erected condition of the latter, and means being provided for stabilising the frame arrangement in the erected condition.

Preferably each support member comprises a two-part telescopic leg with releasable locking means for retaining the leg parts in each of extended and non-extended conditions. The releasable locking means may comprise a spring loaded button mounted on the inner part of the leg and engageable through a respective aperture in the outer part of the leg in a locking condition, manual depression of the button out of the aperture enabling telescopic movement of the leg parts. Each support leg preferably has a footplate on the outer end of that leg part engageable with the ground, for added stability. Four of the support legs may be provided to define respective corners of a shelter having a

substantially rectangular configuration, and the legs may be fabricated in a lightweight, rigid material, such as aluminium tubing.

The interconnecting frame members adapted to define respective ends of the erected frame arrangement may comprise a pair of bars pivotally interconnected at their mid points, whereby an upper end of each respective bar pivotally interconnects with a respective one of the support members and a lower end of each bar pivotally interconnects with a sleeve which is movably arranged on the respective support member, the arrangement being such that downward movement of the sleeves on the support members enables the latter to move together to the collapsed condition, while upward movement of the sleeves enables movement apart of the support members to the erected condition.

Two pairs of two frame members may define a front side of the frame arrangement. Each pair preferably comprises two bars pivotally interconnected at their mid points, the upper end of one bar being pivotally connected to a respective support member and the lower end of the bar being pivotally interconnected to an intermediate support, the upper end of the other bar being pivotally connected to the intermediate support and the lower end of that bar being pivotally interconnected to the movable sleeve on the respective support member. The intermediate support may comprise a two-part telescopic leg with the lower ends of said one bars being connected to one of the parts and the upper ends of said other bars being connected to the other of the parts, whereby movement of the sleeves downwardly on the support members and movement of the parts of the intermediate support to an extended condition enables movement together of the support members to the collapsed position, and upward movement of the sleeves together with movement of the parts of the intermediate support to a non-extended condition enables movement apart of the support members to the erected condition.

Two pairs of two frame members may also define a rear side of the frame arrangement. Each pair may comprise an arrangement of two bars similar to

the frame arrangement on the front side, the inner ends of the respective bars however being pivotally connected together and not to any intermediate support.

Releasable locking means may be provided for the sleeves on the support members to provide for locking of the sleeves in one position when the frame arrangement is in the collapsed condition, and in another position when the frame arrangement is in the erected condition. The releasable locking means may comprise the spring loaded buttons on the support legs engageable through apertures in the sleeves.

The cover arrangement is preferably attached to the upper ends of the support members, and may also be attached to the upper end of the upper part of the intermediate support. The material may be a fabric, such as nylon, which is preferably waterproof and fire retardant. The material is so formed that, in the erected condition, the canopy can be drawn over the sides and ends of the frame arrangement, whereby to cover the frame members.

The stabilising means for the frame arrangement may comprise guy ropes which are permanently attached to the cover arrangement. A guy rope may be provided at each end of the shelter and may comprise a first length of material to one side of the shelter which has a free end to be secured to the ground, a second length secured to the cover material along the extent of an end of the shelter, and a third length of material at the other side of the shelter having a free end for attachment to the ground. The guy ropes may be substantially fabricated from nylon webbing.

The portable shelter may further include an additional cover, preferably formed of a panel to extend across each end of the shelter between the canopy and the ground and a panel to extend across one side of the shelter between the canopy and the ground, the end panels and side panel preferably being connected together. The side panel is preferably fabricated in the same material as the canopy, and the end panels each preferably include a

transparent material extending over at least a substantial part of the panel. The side and end panels are preferably attachable to the canopy by a releasable locking arrangement, such as a fleece and hook fastener, and the side panels may be attachable to respective support members by releasable locking means such as loops having fleece and hook fasteners.

An embodiment of the present invention will now be described by way of example only, with reference to the accompanying drawings, in which:-

Fig. 1 is a front view of a portable shelter according to the invention in an erected condition;

Fig. 2 is an end view of the shelter of Fig. 1;

Fig. 3 is a front view similar to Fig. 1 but with the canopy removed;

Fig. 4 is a view similar to Fig. 2 but with the canopy removed; and

Fig. 5 is a side view of an additional removable cover for the shelter.

Referring to the drawings, a collapsible portable shelter 10 of substantially rectangular configuration has a frame arrangement 12 (Figs. 3 and 4) and a canopy 14 of a fabric such as nylon, which is waterproof and fire retardant. Stabilisers in the form of guy ropes 16 are secured to the canopy 14 and can be fixed into the ground, while an additional cover 18 (Fig. 5) can be attached to the canopy 14 to extend around the back and ends of the shelter 10.

The frame arrangement 12 has four ground engageable support members defining respective corners of the shelter 10. The support members are in the form of telescopic legs 20, 22, 24, 26 of rectangular cross-section, the legs preferably being fabricated in a lightweight, rigid material, such as aluminium tubing. Each of the legs 20-26 has its respective lower part 28-34 movable within its respective upper part 36-42, with each of the lower parts having a footplate 44 for providing additional stability when the shelter 10 is erected.

At each end of the shelter 10, the frame arrangement 12 provides a pair of bars interconnecting the upper parts of the respective support legs, one pair of bars 46, 48 being shown as interconnecting the support legs 20, 22 in Fig. 4.

The support leg 20 defines the front of the shelter 10 and has its upper part of greater length than the upper part of the rear support leg 22, whereby the shelter canopy 14 slopes from front to back (as shown in Fig. 2). The bars 46, 48 pivotally interconnect at their mid points, the upper end of the bar 46 being pivotally connected to the upper end of the leg 22, and the lower end being pivotally connected to a sleeve 20A which is movable on the upper part 36 of the leg 20. The bar 48 has its upper end pivotally connected to the upper part 36 and its lower end pivotally connected to a sleeve 22A on the upper part 38 of the leg 22.

At the front side of the shelter 10, the frame arrangement 12 provides two pairs of bars, each pair interconnecting a respective support leg with an intermediate telescopic support 50. The pair of bars 52, 54 extending between the support leg 20 and the support 50 are pivotally interconnected at their mid points, an upper end of the bar 52 being pivotally connected to the upper part 36 of the leg 20, with the lower end being pivotally connected with a lower part of the support 50 which is telescopically movable in the upper part. The bar 54 is pivotally connected at its upper end to the upper part of the support 50 and is pivotally connected at its lower end to the sleeve 20A. Similarly, bars 56, 58 connect between the support leg 24 and the intermediate support 50, the lower end of the bar 58 being pivotally connected to a sleeve 24A on the leg 24.

At the rear side of the shelter 10, a substantially similar arrangement of two pairs of bars (not shown) is provided. However, there is no intermediate support, the respective inner ends of the pairs of bars being pivotally connected together.

Releasable locking arrangements are provided to lock the support legs 20-26 in their extended condition as shown in the drawings, and also to lock the legs in their non-extended condition. Releasable locking arrangements are also provided for locking the respective sleeves 20A-26A on the support legs 20-26 in both uppermost and lowermost positions. The locking means for the support legs may comprise spring loaded pins on the respective lower parts

engageable through apertures in the respective upper parts, and for the support leg sleeves, the locking means may comprise spring loaded pins on the upper parts of the support legs engageable in apertures in the sleeves. The pins may be manually depressed out of the respective apertures to release for relative movement.

The canopy 14 is permanently attached to the upper ends of the support legs 20-26 and to the upper end of the intermediate support 50 by any suitable attachment. The canopy 14 extends across the top of the shelter 10 and can be drawn down over the ends and sides of the shelter 10 to a level covering the frame arrangement 12.

An arrangement of the guy ropes 16 is provided at each end of the shelter 10. Each arrangement comprises a rope 16 which may be substantially fabricated from nylon webbing having a first free length 56, a second length permanently secured across the respective end of the canopy 14, by being sewn into the fabric of the latter, and a third free length 58. The free end of each of the lengths 56, 58 may be pinned to the ground to stabilise the shelter 10 when erected. A further one of the guy ropes 16 has a first length sewn into the material of the canopy 14 from front to back thereof, midway of the length of the canopy 14, and a second free length 60, the end of which can be pinned to the ground.

The additional cover 18 comprises three panels formed as a single unit, end panels 64, 66 being adapted to extend across the ends of the erected shelter 10 between the canopy 14 and the ground, and the middle panel 68 being adapted to extend across the back of the erected shelter 10 between the canopy 14 and the ground. The panels 64-68 are each provided with a strip 70 of Velcro across the upper end and eyelets 72 in the lower end. Gaps are provided between the strips 70 of adjacent panels to allow for the support legs. The strips 70 are adapted to releasably attach to Velcro strips provided along the lower edges of the rear side and end sections of the canopy 14 to be suspended therefrom, while the eyelets 72 allow the panels to be fastened to the ground.

Hoops 74 with Velcro fastenings are provided along each end edge of the panels 56, 58 to loop around the respective support legs and thereby fasten the cover 18 thereto.

For storage and transport, the shelter 10 can collapse to a condition in which it occupies substantially the same space as a golf bag. From the erected condition shown in Figs. 1 and 2 of the drawings, after the cover 18 has been removed, the guy ropes are released, the sleeves on the support legs are released, and the uppermost bars of those defining the ends of the shelter are pulled down to initiate collapse widthwise of the frame arrangement. Release of the locking for the intermediate support enables collapsing lengthwise of the frame arrangement until the latter has collapsed to the extent that all the support legs can be moved close together. Release of the locking for the support legs then enables the latter to be moved to their non-extended condition so that the shelter is collapsed to its smallest size. In the collapsed condition, the shelter with the removed additional covering can be retained in a bag of a size enabling, for example, the shelter to be carried in a car boot.

The shelter can be erected relatively quickly and easily by the reverse procedure, i.e. by moving the support legs to their extended condition, pushing the support legs apart to expand the cross bars and pushing up on the lowermost bars at the respective ends of the shelter till the bars move to the positions in which they are automatically locked by means of the sleeves. The canopy is drawn over the support legs, the guy ropes are pinned to the ground, and the additional covering is secured if required.

The panels 64-68 of the cover 18 are preferably formed from the same material as the canopy 14. When the shelter 10 is intended to be used, in particular, as a sports event team shelter or the like, each of the side panels 64, 68 preferably includes a transparent material extending over at least a substantial part thereof to enable viewing through the sides of the shelter.

There is thus provided a portable shelter which, in its collapsed

condition, can be easily stored and transported, and which can be quickly and easily erected without the aid of any tools. The shelter, when stabilised by the guy ropes, is very stable as the ropes are firmly secured to the canopy. The canopy itself and the additional covering can be provided in any suitable colour or colour combination, for example to match the colours worn by a sports team, and also the area of material available provides prominent advertising space, for example for sponsors' names, logos etc.

It is envisaged that, particularly for use as a sports event team shelter, a collapsible bench may be pivotally interconnected to the frame arrangement, for example to the support legs defining the rear of the shelter. The bench may be fabricated in a rigid lightweight material such as aluminium and may include a seat which could be of a plastics material. The provision of a bench may require an additional support leg and modification of the structure of the frame members defining the rear of the shelter.

Various other modifications may be made without departing from the invention. For example, the support legs may be adjustable to different heights between the non-extended condition and the fully extended condition.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims:-

1. A portable shelter having a frame arrangement comprising a plurality of ground engageable support members and a plurality of frame members interconnecting the support members, respective ones of the frame members being pivotally interconnected with one another and with the respective support members, whereby to be manually movable between a collapsed condition and an erected condition, a cover arrangement formed of a flexible material being attached to the frame arrangement and adapted to form a canopy in the erected condition of the latter, and means being provided for stabilising the frame arrangement in the erected condition.
2. A shelter according to Claim 1, wherein each support member comprises a two-part telescopic leg with releasable locking means for retaining the leg parts in each of extended and non-extended conditions.
3. A shelter according to Claim 2, wherein the releasable locking means comprises a spring loaded button mounted on the inner part of the leg and engageable through a respective aperture in the outer part of the leg in a locking condition, manual depression of the button out of the aperture enabling telescopic movement of the leg parts.
4. A shelter according to Claim 2 or 3, wherein each support leg has a footplate on the outer end of that leg part engageable with the ground, for added stability.
5. A shelter according to any of Claims 2 to 4, wherein four of the support legs are provided to define respective corners of a shelter having a substantially rectangular configuration.
6. A shelter according to any of Claims 2 to 5, wherein the legs are fabricated in a lightweight, rigid material, such as aluminium tubing.

7. A shelter according to any of the preceding Claims, wherein the interconnecting frame members adapted to define respective ends of the erected frame arrangement comprise a pair of bars pivotally interconnected at their mid points, whereby an upper end of each respective bar pivotally interconnects with a respective one of the support members and a lower end of each bar pivotally interconnects with a sleeve which is movably arranged on the respective support member, the arrangement being such that downward movement of the sleeves on the support members enables the latter to move together to the collapsed condition, while upward movement of the sleeves enables movement apart of the support members to the erected condition.
8. A shelter according to any of the preceding Claims, wherein two pairs of two frame members define a front side of the frame arrangement.
9. A shelter according to Claim 8, wherein each pair comprises two bars pivotally interconnected at their mid points, the upper end of one bar being pivotally connected to a respective support member and the lower end of the bar being pivotally interconnected to an intermediate support, the upper end of the other bar being pivotally connected to the intermediate support and the lower end of that bar being pivotally interconnected to the movable sleeve on the respective support member.
10. A shelter according to Claim 9, wherein the intermediate support comprises a two-part telescopic leg with the lower ends of said one bars being connected to one of the parts and the upper ends of said other bars being connected to the other of the parts, whereby movement of the sleeves downwardly on the support members and movement of the parts of the intermediate support to an extended condition enables movement together of the support members to the collapsed position, and upward movement of the sleeves together with movement of the parts of the intermediate support to a non-extended condition enables movement apart of the support members to the erected condition.

11. A shelter according to any of the preceding Claims, wherein two pairs of two frame members define a rear side of the frame arrangement.
12. A shelter according to Claim 11, wherein each pair comprises two bars pivotally interconnected at their mid points, whereby an upper end of each respective bar pivotally interconnects with a respective one of the support members and a lower end of each bar pivotally interconnects with a sleeve which is movably arranged on the respective support member.
13. A shelter according to any of Claims 7 to 12, wherein releasable locking means are provided for the sleeves on the support members to provide for locking of the sleeves in one position when the frame arrangement is in the collapsed condition, and in another position when the frame arrangement is in the erected condition.
14. A shelter according to Claim 13, wherein the releasable locking means comprises spring loaded buttons on the support members engageable through apertures in the sleeves.
15. A shelter according to any of the preceding Claims, wherein the cover arrangement is attached to the upper ends of the support members.
16. A shelter according to Claim 15, when dependent on Claim 9, wherein the cover arrangement is attached to the upper end of the upper part of the intermediate support.
17. A shelter according to any of the preceding Claims, wherein the material of the cover is a fabric, such as nylon, which is waterproof and fire retardant.
18. A shelter according to any of the preceding Claims, wherein the material of the cover is so formed that, in the erected condition, the canopy can be drawn over the sides and ends of the frame arrangement, whereby to cover the frame members.

19. A shelter according to any of the preceding Claims, wherein the stabilising means for the frame arrangement comprises guy ropes which are permanently attached to the cover arrangement.
20. A shelter according to Claim 19, wherein a guy rope is provided at each end of the shelter and comprises a first length of material to one side of the shelter which has a free end to be secured to the ground, a second length secured to the cover material along the extent of an end of the shelter, and a third length of material at the other side of the shelter having a free end for attachment to the ground.
21. A shelter according to Claim 19 or 20, wherein the guy ropes are substantially fabricated from nylon webbing.
22. A shelter according to any of the preceding Claims, wherein the shelter includes an additional cover formed of a panel to extend across each end of the shelter between the canopy and the ground and a panel to extend across one side of the shelter between the canopy and the ground, the end panels and side panel preferably being connected together.
23. A shelter according to Claim 22, wherein the material of the additional cover is a fabric, such as nylon, which is waterproof and fire retardant.
24. A shelter according to Claim 22 or 23, wherein the end panels each include a transparent material extending over at least a substantial part of the panel.
25. A shelter according to any of Claims 22 to 24, wherein the side and end panels are attachable to the canopy by a releasable locking arrangement, such as a fleece and hook fastener.
26. A shelter according to any of Claims 22 to 25, wherein the side panels are attachable to respective support members by releasable locking means such as

loops having fleece and hook fasteners.

27. A portable shelter substantially as hereinbefore described with reference to the accompanying drawings.

28. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as any of the preceding claims.



Application No: GB 9626390.0  
Claims searched: 1-27

Examiner: Mr D. J. Lovell  
Date of search: 5 March 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK Cl (Ed.P): E1D ( DTNJ, DTNK, DTNL, DTNM, DTNN, DTNR )  
Int Cl (Ed.6): E04H

Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2183267 A	Big K Charcoal Merchants	1
X	EP 0514574 A1	Stockler	1-5,8
X	WO 96/03561 A1	Carter	1
X	WO 96/03560 A1	"	1
X	US 5634483	Gwin	1,2,8
X	US 5275188	Ming	1,2,8
X	US 4947884	Lynch	1-5,7

- X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.  
& Member of the same patent family

- A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.

**This Page Blank (uspto)**